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**In re CHANDLER****(CCPA)****117 USPQ 361****Decided Apr. 23, 1958****Appl. No. 6341****U.S. Court of Customs and Patent Appeals**

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**Headnotes****PATENTS****1. Claims—In general (§ 20.01)****Claims—Duplicate or redundant (§ 20.40)**

It is proper to allow applicants a reasonable latitude in setting forth their inventive concepts in different phraseology, but it is purpose of claims to point out and define what applicant regards as his invention; that purpose is not served if, as result of frequent repetitions, they present to the mind a blur rather than a definition.

**2. Claims—Broad or narrow—In general (§ 20.201)****Claims—Duplicate or redundant (§ 20.40)**

Whether claim is broad or narrow is matter of degree and opinion; it does not follow that two claims are patentably, or even materially, different from each other merely because one may be termed "broad" and the other "narrow"; similarly, two claims do not necessarily differ materially because one merely recites only one engine while the other recites several; fact that one of two claims is drawn to method, and the other to apparatus, is not, in itself, proof that both are necessary to protect applicant's invention.

**3. Claims—Duplicate or redundant (§ 20.40)**

Extent to which virtual duplication of claims may be justified by possible remote contingencies is matter of opinion which must be determined on basis of circumstances of each case; it is necessary to balance possible damage to applicant which might result

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from insufficient number of claims against burden imposed upon Patent Office and courts by presentation of unreasonably large number.

#### **4. Claims — Functional — In general (§ 20.451)**

##### **Claims—"Means" claims (§ 20.65)**

Claim recites "means responsive to said movement \* \* \*", so that said aircraft is propelled \* \* \*"; expression beginning with "so that" is not merely functional, but constitutes part of definition of "means responsive to said movement"; such definition corresponds to 35 U.S.C. 112.

#### **5. Court of Customs and Patent Appeals —Issues determined—Ex parte patent cases (§ 28.203)**

Claims rejected as drawn to nonelected species, but not considered on their merits by examiner or Board, are not before court for consideration on merits.

#### **6. Board of Appeals—Issues determined (§ 19.30)**

Board properly refuses to consider merits of claims since examiner made no final rejection of them except on ground of multiplicity.

#### **7. Pleading and practice in Patent Office—In general (§ 54.1)**

Question as to how many claims should be considered on their merits when there is outstanding rejection of all claims on ground of multiplicity is one which should be left largely to discretion of Patent Office; there appears to be no statute or rule which requires any action on the merits under such circumstances.

##### **Particular patents—Jet Engine**

Chandler, Jet Engine Thrust Control, all claims of application refused.

### **Case History and Disposition:**

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#### **Appeal from Board of Appeals of the Patent Office.**

**Application for patent of Milton E. Chandler, Serial No. 23,936;  
Patent Office Division 18. From decision rejecting all claims, applicant**

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**appeals. Modified.**

**Attorneys:**

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**CLARENCE W. MOORE (S. WM. COCHRAN of counsel) for  
Commissioner of Patents.**

**Judge:**

Before JOHNSON, Chief Judge, and O'CONNELL, WORLEY, RICH, and JACKSON (retired), Associate Judges.

### **Opinion Text**

**Opinion By:**

**O'CONNELL, Judge.**

This is an appeal from the decision of the Board of Appeals of the United States Patent Office affirming the rejection by the Primary Examiner of all the claims of appellant's application No. 23,936 for a patent on an automatic control for jet engines. Claims 2 and 12, which are typical of the rejected claims, are as follows:

2. In an aircraft propelled by a jet engine, means for controlling the speed of flight in accordance with the reaction thrust of the engine jet, comprising; means for mounting the engine so that it is movable relative to said aircraft in proportion to the reaction thrust of its jet, throughout the range of said movement; and means responsive to said movement for regulating the propulsive power of said engine,

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in accordance with said movement, so that said aircraft is propelled at a definite, selected speed, corresponding to the position of said engine relative to said aircraft, throughout the speed range of said aircraft.

12. In an aircraft propelled by multiple jet engines, means for controlling the speed of flight in accordance with the jet reaction thrust of each engine, comprising; means for mounting each engine so that it is movable relative to said aircraft in proportion to the reactive thrust of its jet, throughout the range of said movement; and means for regulating the propulsive power of all the engines by varying the fuel supply to each engine in accordance with the movement of one engine selected as a master, so that said aircraft is propelled at a definite, selected speed, corresponding to the position of said engine relative to said aircraft, throughout the speed range of said aircraft.

The references relied on are:

Goddard, 2,397,658, April 2, 1956.

Griffith (British), 578,311, June 24, 1946.

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Appellant's invention relates to a method and apparatus for controlling the speed of an aircraft driven by one or more jet engines and preventing it from veering off its course because of unequal thrusts from the several engines. The engines are provided with individual manually adjustable control devices of identical construction, which are connected to respond to the reaction thrusts of the respective engines to vary correspondingly the fuel flow or, alternatively, the cross-sectional area of the air intake or exhaust gas discharge of the engines. The several control devices are connected with each other by a single fluid pressure line, so that all the engines may be controlled in accordance with the performance of one of them, employed as a master engine. Each control mechanism includes a bellows for compensating for changes in density of the atmosphere, which is normally a function of the altitude of the plane, and also includes means for preventing the engine speed or temperature from exceeding safe limits. Since the appealed claims are broadly drawn, we deem it unnecessary to consider the specific mechanisms by which the results above described are accomplished.

The Goddard patent relates to a jet engine primarily designed for the propulsion of rockets or rocket craft. It discloses a combustion chamber supported on the frame of that craft by springs in such a manner that the springs are compressed by an amount dependent upon the total jet thrust of the engine. The resultant movement of the combustion chamber causes a corresponding movement of one sleeve of a sleeve valve which controls the supply of fuel to the combustion chamber. The other sleeve of the valve may be adjusted manually as desired and a manually actuated valve for completely cutting off the fuel supply is also provided.

The British patent to Griffith discloses a control system for a multi-engine jet aircraft in which each engine is provided with a tube facing upstream in the path of the exhaust gases and transmitting the pressure resulting from the impact of the gases to one side of a diaphragm in a pressure differential device. The opposite sides of the diaphragms associated with the several engines are subjected to a common fluid pressure controlled by a valve in a by-pass around a fluid pump. The diaphragm of each engine regulates the fuel supply of that engine so that changes in the engine exhaust pressure will cause an appropriate adjustment in the fuel supply to balance the thrust to that of the other engine or engines.

In another embodiment shown by Griffith, four engines are employed, one of which is manually controlled, and the pressure from the exhaust of the engine is transmitted to one side of each of three diaphragms, the other sides of the diaphragms being each subjected to the exhaust pressure of one of the other engines. The movements of the diaphragms control the fuel supplies of the engines with which they are associated to bring them into balance with the manually controlled master engine.

There are fifty claims involved in this appeal and all of them have been rejected on the ground of multiplicity. Both the examiner and the board considered the number of claims presented to be greatly in excess of that necessary to point out and protect appellant's invention, and the examiner was of the opinion that twenty claims would be adequate for that purpose.

Appellant argues that fifty claims are necessary because "The invention herein disclosed is *pioneer in scope*, there being no reference cited which even broadly anticipates applicant's *basic inventive concept of controlling the speed of flight* of a jet

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engined aircraft by means of the *jet reaction thrust* of the engine"; and because "the invention herein disclosed is a *very complex* one, involving the combination of a large number of novel elements."

Assuming appellant's invention to be of a pioneer nature, it is not clear why fifty claims should be necessary to define such an invention which is succinctly de

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scribed in a single sentence, as quoted above. It may be noted that eight claims were considered sufficient for the basic patent covering both the electromagnetic telegraph and the Morse code. *O'Reilly et al. v. Morse et al.*, 56 U.S. 61.

Appellant's invention is not of an exceptionally complex nature. The application includes three sheets of drawings and the specification covers less than nineteen pages of the printed record here. Applications of substantially greater complexity are frequently before this court and are adequately defined in a number of claims much less than the number presented here. Moreover, as pointed out by the board, the appealed claims do not specify the various detailed features, but are broadly drawn. Accordingly, the alleged complexity of the specific apparatus disclosed affords no basis for an excessive number of claims.

[1] As was pointed out in *In re Barnett*, 33 C.C.P.A. (Patents) 1119, 155 F.2d 540, 69 USPQ 609, it is proper to allow applicants a reasonable latitude in setting forth their inventive concepts in different phraseology, but it is the purpose of claims to point out and define what an applicant regards as his invention, and that purpose is not served if, as the result of frequent repetitions, they present to the mind a blur rather than a definition. *Ex parte Duncan*, 1920 C.D. 36, 276 O.G. 207, affirmed 49 App. D.C. 372, 265 F. 1012.

Appellant seeks to justify his presentation of fifty claims by dividing them into ten categories, as follows:

- (a) Broad apparatus claims involving a single engine;
- (b) broad apparatus claims involving a plurality of engines;
- (c) narrow apparatus claims involving a single engine;
- (d) narrow apparatus claims involving a plurality of engines;
- (e) broad method claims involving a single engine;
- (f) broad method claims involving a plurality of engines;
- (g) narrow method claims involving a single engine;
- (h) narrow method claims involving a plurality of engines;
- (i) broad apparatus claims involving a subcombination of elements of applicant's invention; and
- (k) narrow apparatus claims involving a subcombination of elements of applicant's invention.

[2] Such an arbitrary division does not establish that there are material differences between the claims. Whether a claim is broad or narrow is a matter of degree and opinion, and it does not follow that two claims are patentably, or even materially, different from each other merely because one may be termed "broad" and the other "narrow." Similarly, two claims do not necessarily differ materially because one merely recites only one engine while the other recites several; and the fact that one of two claims

is drawn to a method, and the other to an apparatus is not, in itself, proof that both are necessary to protect appellant's invention.

[3] The examiner and the board have pointed out what they consider typical examples of claims which do not differ materially from each other. We agree with them as to those examples and are of the opinion that there are a number of other instances of substantial duplication. No two claims are identical and therefore it is possible to argue, in each instance, that the difference might become important under some hypothetical future circumstances. The extent to which virtual duplication of claims may be justified by possible remote contingencies is a matter of opinion which must be determined on the basis of the circumstances of each individual case. It is necessary to balance the possible damage to an applicant which might result from an insufficient number of claims against the burden imposed upon the Patent Office and the courts by the presentation of an unreasonably large number. In the instant case we are in agreement with the examiner and the board that the number of claims presented is greatly in excess of what is necessary, with the result that the claims as now presented do not particularly point out and distinctly claim the subject matter which the applicant regards as his "invention," as required by 35 U.S.C. 112. Accordingly, the rejection on the ground of multiplicity will be affirmed.

The examiner also respectively considered twenty-one claims selected by appellant, and held that seven of them; namely, claims 24 through 27, 29, 37, and 38 would be allowable aside from their rejection on the ground of multiplicity. Four of the other selected claims, Nos. 4, 5, 13, and 14 were held to be drawn to a non-elected species and therefore would not be allowable in the absence of an allowable generic claim. The remainder of the claims selected, Nos. 2, 3, 6, 11, 12, 16, 17, 19, 21 and 153, were held to be unpatentable over the references above cited.

Claims 2, 3, and 21 were held by the examiner and the board to be so broad as to be anticipated by the Goddard patent. So far as that holding is concerned, those claims are substantially identical

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and it will be sufficient to consider only claim 2 specifically.

Goddard shows a combustion chamber producing a propelling jet for his aircraft or rocket, which satisfies the broad requirement of claim 2 for a jet engine, and he also discloses the mounting of the combustion chamber in such a manner that it is movable relative to the aircraft in proportion to the jet thrust, throughout its range of movement. Accordingly, if claim 2 distinguishes patentably over Goddard, it must be because of the recitation, in its final lines, of "means responsive to said movement for regulating the propulsive power of said engine, in accordance with said movement, so that said aircraft is propelled at a *definite, selected speed*, corresponding to the position of said engine relative to said aircraft, throughout the speed range of said aircraft" (emphasis added).

The examiner held that the words beginning with "so that" in the quoted expression were merely a functional expression equivalent to the "whereby" clause considered in *In re Lamb*, 32 C.C.P.A. (Patents) 799, 146 F.2d 277, 64 USPQ 241, and hence could not have patentable significance. The board found it unnecessary to consider the correctness

of that holding.

[4] We are of the opinion that the expression beginning with "so that" is not merely functional, but constitutes a part of the definition of the "means responsive to said movement." Thus that means is defined as being responsive to the movement of the engine in such a way that the aircraft will be propelled at a definite speed in the manner specified. Such a definition conforms to the provision of 35 U.S.C. 112 that an element in a claim for a combination "may be expressed as a means or step for performing a specified function without the recital of structure, material or acts in support thereof." The instant situation differs from that presented in *In re Lamb*. There the "whereby" clause did not constitute a part of the definition of any means but merely stated a function which did not necessarily follow from the apparatus recited in the claim.

It follows from the foregoing observations that claims 2, 3, and 21 are not anticipated by the Goddard patent, unless that patent shows a control means which will cause the aircraft to be "propelled at a definite, selected speed." It has not been contended that Goddard expressly discloses such speed control, but it was the opinion of the board that it is inherent in the system disclosed by the patent.

The arrangement shown by Goddard is such that the movement of the combustion chamber in response to an increased thrust causes the fuel supply to be increased. So long as enough oxygen is supplied to the chamber to combine with all the fuel supplied, such an increase in the amount of fuel will increase the thrust, resulting in a further movement of the combustion chamber and an additional increase in the fuel supply. However, when the amount of fuel exceeds that which can properly combine with the oxygen, the thrust will be decreased so that the combustion chamber will move back, under the action of the springs by which it is supported, thus restricting the supply of fuel. The result of this arrangement, as described by Goddard, is that fuel will always be supplied in such an amount as "to produce the greatest thrust for the oxygen flow that is taking place."

Goddard's oxygen supply is controlled by a hand valve, but it is pointed out in the patent that the oxygen flow depends not only on the setting of the valve but also upon the temperature of the combustion chamber, and it is also evident that in the case of a rocket, the flow would vary as the supply of oxygen approached exhaustion. When such variations take place, the control means described does not adjust to maintain a uniform thrust or speed but, on the contrary, brings the fuel supply into proper relation with the changed supply of oxygen to the combustion chamber, thus producing a variation in thrust and speed.

In our opinion the Goddard arrangement does not satisfy the requirement of claims 2, 3, and 21 as to speed regulation. It is true, that so long as Goddard's oxygen flow remains constant, the fuel supply will also be kept constant, resulting in uniform speed. However, upon any change in the rate of oxygen flow, there will be a corresponding change in thrust and speed. Accordingly, Goddard's fuel control means serves merely to coordinate the fuel and oxygen supplies to obtain optimum combustion conditions and is not, in any proper sense, a means for maintaining any definite selected speed. On the contrary, it acts to produce a different speed whenever there is a variation in the rate of flow of oxygen.

It follows that claims 2, 3, and 21 are not anticipated by the Goddard patent. Since it has not been contended that, if not so anticipated, they do not define invention over the patent, it must be held, so far as the issues presented here are concerned, that those claims

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are drawn to patentable subject matter.

Claim 153 is a method claim of a scope similar to that of claims 2, 3, and 21, and was similarly rejected on the Goddard patent. For the reasons given in

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connection with claims 2, 3, and 21, we also find claim 153 to be drawn to patentable subject matter.

Claim 6 was held by the examiner to be unpatentable over the patent to Banning, 2,569,444, but that holding was reversed by the board. Accordingly, no question as to the patentability of claim 6 is here presented.

Claims 11, 12, 16, 17, and 19 were rejected as unpatentable over Griffith, in view of Goddard. Claim 12, which is representative of that group of claims, calls for a multi-jet engine aircraft in which flight speed is controlled in accordance with the jet reaction thrust of each engine, the engines being movably mounted to effect that result, and in which the propulsive power of all the engines is regulated by varying the fuel supply to a master engine, so that the aircraft is propelled at a definite selected speed.

It was the opinion of the board that Goddard controls the speed of flight of his aircraft by the jet thrust of his engine, that Griffith controls his multi-jet engine plane in such a way as to obtain a definite selected speed, although he utilizes exhaust flow rather than total jet thrust for that purpose, and that there would be no invention in combining those two disclosures to produce what is recited in claims 11, 12, 16, 17, and 19.

As has been noted in connection with claims 2, 3, and 21, we are of the opinion that Goddard does not control the speed of his aircraft by the jet thrust of his engine. That thrust acts merely to coordinate the oxygen and fuel supplies and to make the speed dependent upon the rate of supply of oxygen. Moreover, it is by no means apparent how the Goddard and Griffith disclosures could be combined to produce a unitary device functioning in the manner called for by claim 12. Griffith effects his multi-engine controls by creating a pressure which is a function of the exhaust flow of each engine and balancing the pressure of the master engine against the individual pressures of the other engines. Goddard does not show such a pressure system and there is nothing to show how the movement of each of a number of engines constructed in accordance with his disclosure could be converted into a fluid pressure so that such pressures could be balanced in the manner suggested by Griffith.

In our opinion, the references do not suggest either the desirability of the result called for by claim 12 or the manner in which it could be attained. It follows that that claim defines patentably over the references.

Claims 11, 16, 17, and 19 are quite similar to claim 12 and, for the reasons just given, we consider that those claims also define patentable subject matter.

[5] Claims 4, 5, 13, and 14 were held to be drawn to nonelected species. They were not considered on their merits by the examiner or the board and, accordingly, are not before us for such consideration. In re Hill et al., 34 C.C.P.A. (Patents) 783, 158 F.2d 1001, 72 USPQ 263. Appellant alleges error in the failure of the board to pass upon the merits of those claims. He does not deny that they are directed to nonelected species, but contends that the application contains allowable generic claims and that therefore he is

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entitled to an action on the merits of claims 4, 5, 13, and 14, under the provisions of Patent Office Rule 146. However, since all the claims stand rejected on the ground of multiplicity, the application now contains no allowed claim, generic or otherwise. If the multiplicity objection is overcome, and the case then contains an allowable generic claim, action on the merits of claims 4, 5, 13, and 14 will apparently be in order.

[6] Appellant also contends that, notwithstanding the rejection on the ground of multiplicity, the board should have passed on the merits of some or all of claims 7 to 10, 15, 18, 22, 23, 28, 30 to 36, and 39 to 50. The board properly refused to consider those claims on the merits since the examiner had made no final rejection of them except on the ground of multiplicity.

[7] The question as to how many claims should be considered on their merits when there is an outstanding rejection of all the claims on the ground of multiplicity is one which should be left largely to the discretion of the Patent Office tribunals. There appears to be no statute or rule which requires any action whatever on the merits under such circumstances. In the instant case, we are of the opinion that, with the exception of claims 4, 5, 13, and 14, to the extent noted above, appellant's application has received ample consideration on the merits and such consideration of additional claims is not in order.

The decision of the Board of Appeals is affirmed as to (1) the rejection of all the claims on the ground of multiplicity; and (2) as to the failure to consider claims 4, 5, 7, to 10, 13, 14, 15, 18, 20, 22, 23, 28, 30 to 36, and 39 to 50 on their merits; and (3) is reversed as to the holding that claims 2, 3, 11, 12, 16, 17, 19, 21, and 153 are not drawn to patentable subject matter.

JACKSON, Judge, retired, recalled to participate.

- End of Case -

